

Request for Proposals

RFP-2016-1201

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National Interoperability

Business Rules

4/22/2016
Version 0.5

Modification History

Date	Version	Modifications
2/18/2014	0.1 DRAFT	First draft issued.
9/5/2014	0.2 DRAFT	Comments incorporated
7/23/2015	0.3 DRAFT	Comments incorporated
1/11/2016	0.4 DRAFT	SSIOP requirements included for review
4/22/2016	0.5	IAG and CTOC comments addressed

ABSTRACT

This document contains the business rules for engaging in toll transaction interoperability, as established by (Governance) and the Agreement for Nationwide Electronic Toll Collection Interoperability.

These business rules may be revised from time to time by (Governance). Interoperability was developed for the sole purpose of coordinating the exchange of toll transactions of multiple organizations that utilize, operate, and manage toll facilities. This document describes what is required of a participating Agency in order to enable and maintain sound business relationships.

Should a question regarding Interoperability operations arise, the Agreement for Nationwide Electronic Toll Collection Interoperability shall control, with these interoperable business rules secondary to that agreement.

1 Introduction

1.1 Purpose

The purpose of this document is to describe and record all business rules for interoperability relationships.

Each party has responsibility to implement each business rule as stated herein.

The business rules have been agreed to by each party.

1.2 Definitions, Acronyms, Abbreviations

The intent of this section is to list terms and acronyms used in this document, for easy reference.

Table 1: Definitions, Acronyms, and Abbreviations

Term	Description
Account	An NIOP account established by a Customer for which an NIOP tag has been issued for the payment of tolls.
Agency	An Agency, company, or other entity that is a party to the Agreement for Nationwide Interoperability Agency.
Agreement for Nationwide Interoperability	The Agreement for toll collection Interoperability that allows for exchange and settlement of tolling transactions.
Away Agency	An NIOP Interoperable Agency that is not the Customer's Home Agency.
Bulk Tag Validation List	A Tag Validation list (TVL) containing all tags that are considered good by a Home Agency.
Customer	A party that establishes an NIOP Account with an Agency.
Credit Settlement Amount	The amount that one Agency agrees to pay another Agency.
Debit Settlement Amount	The amount that one Agency agrees to receive from another Agency.
Differential Tag Validation List	A Tag Validation list that contains the tags that have changed status since the last Bulk Tag Validation List. If a tag has changed status multiple times, it is listed based on the last tag status as long as it is different from the last Bulk Tag Validation List.
Disputed Transaction	A Transaction which is disputed by the Customer or the Home Agency.
Duplicate Transaction	Multiple transactions generated by the same tag or license plate at the same general tolling location (e.g., same plaza and same or adjacent lane), within sixty seconds that would indicate an erroneous recording of a single transaction multiple times.
ETC	Electronic Toll Collection; a method of paying tolls electronically without human intervention in the lane.
FHWA	Federal Highway Administration
Governance	Comprised of representatives of Interoperable Agencies to formulate and

Term	Description
	serve as the custodian of all NIOP interoperability business rules, interface control documents, and interoperability standards applicable to interoperable toll Agencies and to be responsible for evaluating any proposed amendment to such rules, documents and standards, address disputes and non-compliance with the business rules,
Home Agency	An NIOP Interoperable Agency which owns the NIOP Customer Account with at least one NIOP tag on it and maintains the information related to the vehicle(s) license plate(s) and Tag(s) to which interoperable toll transactions are posted.
Interface Control Document (ICD)	NIOP Interface Control Document (ICD) describes the data interface and the specifics of fields, files, naming conventions, etc., with which each Interoperable Agency must comply when transmitting Interoperable data.
Interoperability Network	A data communications infrastructure that allows one Interoperable Agency to exchange data with multiple other Interoperable Agencies.
Interoperable Transaction	An NIOP Transaction created at an Away Agency by a vehicle identifiable via TVL.
Interoperability Business Rules (IBR)	This document, which is incorporated by reference into, and is a part of, the Interoperability Agreement.
Invalid Tag/Transponder (see Valid Tag/Transponder)	Tag/Transponder that is not on any Home Agency Bulk TVL or has a reported status of invalid. (As determined by the Home Agency). There is no revenue guarantee for toll transactions utilizing an Invalid Transponder.
NIOP	The acronym for Nationwide Interoperability
Post (ed) (ing)	Matching an NIOP Transaction to an NIOP Account and crediting or debiting the corresponding amount from the Account.
Rejected Transaction	NIOP Transactions that are rejected by the Home Agency.
Reconciliation / Reconcile	The NIOP process whereby a Home Agency and an Away Agency resolve any discrepancies in arriving at final Settlement.
Settle (ment)	The transfer of funds between Interoperable Agencies for Interoperable Transactions, fees and other agreed amounts.
Tag	A radio frequency identification (RFID) device that is used to communicate with roadside equipment to identify the unique NIOP account for which a NIOP Agency can pursue the collection of tolls.
Tag Transaction	A transaction transmitted to the Home Agency from the Away Agency for a vehicle which is equipped with a Valid Tag.
Transaction	An electronic record of a vehicle's use of an Agency's tolled location.
Transaction Fee	TBD
Transaction File	A data file containing one or more Interoperable Transaction records.
Valid Tag/Transponder (see Invalid Tag/Transponder)	Tag provided via a Home Agency TVL which is associated with a License Plate and is active on an open [valid] Account at the time of the TVL.
Valid Transaction	The passage of a vehicle associated with a Valid Tag/Transponder or Valid License Plate through an active electronic toll collection lane.
Vehicle	A motorized vehicle or trailer uniquely identified by license plate

Term	Description
Video transaction	An image based transaction that is an NIOP Transaction created at an Away Agency and posted via the license plate identified in the TVL.

2 Requirements

This document focuses on the business rules. These rules and all referenced documents are the business rules for which an Interoperable Agency must comply. The data interface and the specifics of fields, files, naming conventions, etc. are specified in the ICD, which are referenced in this document.

2.1 Tolling Business Rules

2.1.1 General Requirements

IBR-GEN-1. Interoperable Agencies shall jointly establish a system that enables a customer to use one NIOP Account to pay tolls at all Interoperable Agencies without the need to take any further action regarding that Account or the associated Tags or Plates.

IBR-GEN-2. The Home Agency will make a reasonable attempt to maintain up to date customer information.

IBR-GEN-3. Electronic toll collection equipment used by Interoperable Agencies to read tags shall meet the NIOP Technical Requirements document and be certified for NIOP use.

IBR-GEN-4. Agencies exchanging data shall comply with all interoperability requirements agreed upon, including, but not limited to, these Interoperability Business Rules, technical requirements and the ICD.

IBR-GEN-5. Each Interoperable Agency shall provide time synchronization to a National Institute of Standards and Technology time source and shall ensure that all components of its system are time-synchronized.

IBR-GEN-6. NIOP Customer Use Agreements shall be written or revised, as necessary, to comply with and provide clarity regarding Interoperability Business Rules.

IBR-GEN-7. There shall only be one Home Agency for each NIOP Tag in operation.

IBR-GEN-8. Any vehicle eligible for NIOP tolling must be associated to a Valid Tag. Multiple Plates may be associated to the same Tag.

IBR-GEN-9. If a Home Agency receives a Valid Transaction and acknowledges the transaction within 10 days of the transaction date, the transaction is guaranteed to be paid by the Home Agency.

IBR – GEN-10 If the Home Agency receives a Valid Transaction more than ten (10) days but less than or equal to sixty (60) days from the transaction date, the transaction will be

accepted by the Home Agency subject to the availability of funds in the account. This is defined as the non-guaranteed tolls.

2.1.2 Marketing and Branding

IBR-MKT-1. Agencies will provide at least 30 days advance notification of any NIOP marketing activities to (Governance).

IBR-MKT-2. Interoperable Agencies shall use the _____ name and logo for marketing the interoperability of its system. The common logo shall be used to identify participating interoperable tolling locations (be they an entire facility, a lane(s) and/or a plaza(s) to the customer. The _____ logo will not be used to identify, market, or sign non-interoperable facilities.

IBR-MKT-3. An Interoperable Agency that chooses to employ the use of a name other than _____ may do so but is required to post the interoperable _____ name and logo to inform users of interoperability.

IBR-MKT-4. The interoperable _____ name and logo posted on roadway signage for new installations shall adhere to the size requirements agreed upon by (Governance)

IBR-MKT-5. All Interoperable Agencies shall execute a perpetual, royalty free license agreement for use of the _____ name and logo.

IBR-MKT-6. Where roadside signage is used to display the Away Agency's toll rate, the Away Agency shall provide signage displaying the NIOP toll rate if different from the normally posted toll rate. If multiple rates are posted, there must be an indication of which rate is used for NIOP and in accordance with any applicable FHWA standards.

2.1.3 Account Requirements

IBR-ACC-1. Each Home Agency NIOP Customer Use Agreement shall provide that the use of a vehicle and/or tag at an away Agency shall constitute the Customer's acceptance of the interoperability terms in the Account agreement.

IBR-ACC-2. The Customer Use Agreement shall also provide that an Account may be charged when a vehicle's license plate is captured as an image while traveling on an Interoperable Agency's facility and that license plate can be associated with the Customer's Home Agency Account.

IBR-ACC-3. Customers shall be able to use a Valid NIOP Tag to make toll payments at all National Interoperable Agencies.

IBR-ACC-4. An Account may be associated with multiple Tags, one tag may be associated with multiple vehicles on an account.

2.1.4 Reconciliation and Settlement Requirements

IBR-REC-1 Each Agency shall reconcile and settle with all other Agencies in a manner and frequency as agreed upon between the Agencies but shall be at least monthly.

IBR-REC-2 Funds Transfers between any Agencies shall be validated by both the submitting and receiving Agency.

IBR-REC-3 Each Agency is responsible to reconcile the Transactions occurring on its own facility.

IBR-REC-4 Each Agency is responsible to reconcile all bank transfers received from another Agency.

IBR-REC-5 Each Agency is responsible for reconciling against its own reporting system all Interoperable transactions based upon the reconciliation codes as specified in the Reciprocity ICD.

IBR-REC-6 The Away Agency will prepare a reconciliation and settlement report indicating the amount it believes it is due for all Interoperable Transactions which occurred on its facility that are attributed to the Home Agency customer base during the time period being reconciled and settled. The report to each Home Agency shall include the following information:

- (a) The time period being reconciled and settled
- (b) Reconciliation file acknowledgement date
- (c) The amount due to the Agency detailed as follows:
 - i. Total amount of Interoperable Transactions which have been reconciled by the Home Agency grouped by reconciliation file number as specified in the ICD
 - ii. Count and dollar amount of all transactions for which a valid transaction code has been received and settlement is expected
 - iii. Count and dollar amount of any rejected transactions

IBR-REC-7 The Home Agency will prepare a reconciliation and settlement report indicating the amount it believes it owes to each Away Agency for all Interoperable Transactions that occurred on the Away Agency facility that are attributed to the Home Agency customer base during the time period being reconciled and settled. The report to each Away Agency shall include the following information:

- (a) The time period being reconciled and settled
- (b) Reconciliation file acknowledgement date
- (c) The amount due to the Agency detailed as follows:
 - i. Total amount of Interoperable Transactions which have been reconciled as a valid transaction by the Home Agency grouped by transaction file number
 - ii. Count and dollar amount of all transactions for which a valid transaction code has been received and settlement is expected
 - iii. Count and dollar amount of any rejected transactions
 - iv. Count and dollar amount of any adjusted transactions

IBR-REC-8 The reports will be generated and distributed by each Agency/Hub, as applicable, for which there are transactions to settle.

IBR-REC-9 Each Agency is responsible for reconciling the other Agency Reports to its own reports prior to settlement.

2.1.4.1 Reconciliation Issue Resolution

IBR-REC-10 If discrepancies exist, the Agencies will work together to review and verify their differences.

IBR-REC-11 During the review of the reconciliation and settlement reports, the Away Agency may request that the Home Agency provide available documentation supporting the Interoperable Transactions reported as valid or rejected Transactions and adjustments. The documentation shall include:

- Transaction's Tag number and/or license plate information
- Transaction's date and time
- Transaction's location
- Transaction's disposition/status
- Toll Amount

IBR-REC-12 If necessary, the Away Agency on which the Interoperable Transactions occurred will initiate the adjustment to be sent to the Home Agency to update, correct or replace the missing or incorrect transaction data.

IBR-REC-13 Adjustments will be reported, reconciled and settled in the same manner as other Interoperable Transactions.

2.1.4.2 Disputed Tolls

IBR-REC-14 In order to enable proper researching of customer complaints, each Agency will maintain records related to toll transactions for a minimum period of 120 days.

IBR-REC-15 The Home Agency shall notify the Away Agency of Customer complaints regarding alleged erroneous charges or Duplicate Transactions on the Away Agency's facilities.

IBR-REC-16 Disputed Interoperable Transactions will be handled by the Home Agency in accordance with the agreed Disputed Toll Policy. Disputes which fall within the Disputed Toll Policy will become part of the Reconciliation and Settlement between the two Agencies.

IBR-REC-17 When a customer disputes an Interoperable Transaction that occurred on an Away Agency's facility that falls outside of the Disputed Toll Policy, and such transactions are researched, acknowledged and agreed to be an error of the Away Agency, the resulting adjustment will become part of the Reconciliation and Settlement between the two Agencies.

IBR-REC-18 The Home Agency will prepare a Disputed Toll Settlement Report which will detail the amounts and reasons for each disputed toll that has been credited to a customer account. The report will include only those disputes which are made in compliance with the

agreed Disputed Toll Policy or specific Away Agency approval for disputes which fall outside of the Disputed Toll Policy.

IBR-REC-19 When, due to cost/benefit or other considerations, customer accounts are credited for the disputed amount for disputes which fall outside the Away Agencies Disputed Toll Policy, or after research the Away Agency does not otherwise agree to the dispute, such credits will not affect Settlement or Reconciliation between Agencies.

In a situation when a Customer is not satisfied with an Away Agency's resolution of an Interoperable Transaction dispute, the Customer's Home Agency may elect to credit the Interoperable Transaction to the Customer's Account and shall bear the cost of the credit associated with the disputed Transaction.

2.1.4.3 Transaction Fees

IBR-REC-19 The Home Agency will prepare a report indicating the amount of transaction fees (if applicable) due from the Away Agency based upon the number of interoperable transactions or other agreed upon method it has reconciled as valid.

- (a) The time period being reconciled and settled
- (b) The amount due to the Agency detailed as follows:
 - i. Reconciliation file transaction number
 - ii. File acknowledgement date
 - iii. Count and fee amount for all Interoperable transactions for which a valid transaction code has been received and settlement is expected

2.1.4.4 – Settlement

IBR-REC-20 Settlements will occur after the Home Agency and the Away Agency agree on the amounts required. The amounts required will include valid Interoperable Transactions, adjusted for approved disputes and any applicable transaction fees.

IBR-REC-22 All settlements will be in gross amounts unless agreed upon between the settling Agencies to have a net settlement.

IBR-REC-23 The settlement will include all amounts from and will be in agreement with the reconciled period. Approved disputed tolls and applicable transaction fees will be deducted from the amount of valid Interoperable Transactions due. Included with the settlement will be an invoice that will include:

- i. Invoice period
- ii. Total amount due to valid Interoperable Transactions
- iii. Total amount of approved disputed tolls
- iv. Total Amount(s) due for Transaction Fees
- v. Total Credit for net settlement (if agreed upon)
- vi. Total Invoice amount due

IBR-REC-24 Invoices may be sent electronically under a path generally described in Figure-1.

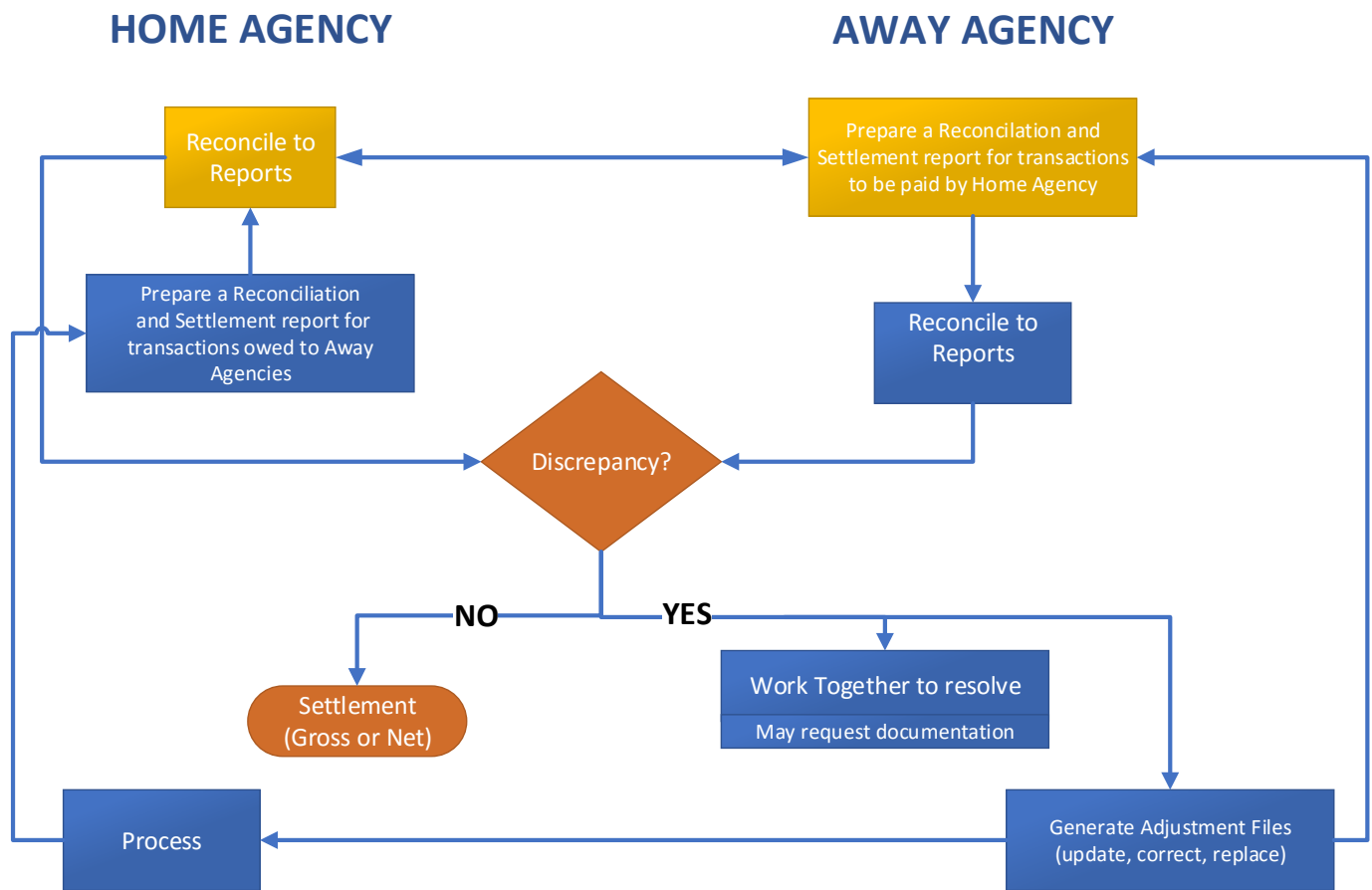


Figure 1 – Reconciliation Process Overview

2.1.5 Data Interchange Requirements

2.1.5.1 General

IBR-DIR-1. Each Interoperable Agency shall comply with the ICD.

2.1.5.2 Tag Validation Lists

IBR-DIR-2. The Home Agency shall document the status of its interoperable Tags and license plates in the Tag Validation List. The Tag Validation List shall denote the status of and associated license plate(s) for each interoperable Tag. The status shall be as defined in the ICD. Each interoperable Tag shall have only one status in the Tag Validation List.

IBR-DIR-3. Interoperable Agencies shall electronically exchange bulk Tag Validation Lists with other Interoperable Agencies on a regular schedule, at least once per week.

IBR-DIR-4. The Tag Validation List shall contain, at a minimum, the Home Agency identifier, Tag identification number, account number, license plate numbers (including jurisdiction/state) and plate type), vehicle classification, and Tag status for each Tag.

IBR-DIR-5. When changes occur to the Tag Validation List, Interoperable Agencies shall exchange a differential Tag Validation List. The differential TVL contains new valid and “now” invalid tags compared to the last bulk TVL. The differential TVLs are exchanged at least daily.

IBR-DIR-6. Each Tag Validation List (bulk or differential) shall be acknowledged within sixty (60) minutes from receipt. Acknowledgement time will be used to determine the current status of the Tag/Account.

IBR-DIR-7. Each Agency shall maintain a history of Tag Validation Transactions sent to and received from the other Interoperable Agencies for a minimum period of 120 days.

2.1.5.3 Transactions

IBR-DIR-8. Upon receipt of transaction records, the Home Agency will post transactions to the proper accounts. Settlement of a Tag Transactions associated to valid TVL status at the time of the original toll transaction shall not be dependent on transaction posting; i.e., the Home Agency's obligation to pay the Away Agency is not contingent upon the Home Agency posting the transactions to the customer's account.

IBR-DIR-9. The class and toll rate as determined by the Away Agency, will be posted and honored by the Home Agency for settlement purposes.

IBR-DIR-10. Each Away Agency shall process transactions without a Valid Tag reads (video transactions) in the following order:

- 1.) Local (non-fleet) customer accounts
- 2.) Regional IOP (non-fleet) TVL (if applicable)
- 3) NIOP (non-fleet) TVL
- 4) Local fleet accounts
- 5) Regional IOP fleet accounts (if applicable)

- 6) NIOP fleet accounts
- 7) Local transaction processing for pursuing payment

IBR-DIR-11. The Away Agency shall send at least one Transaction File to the Home Agency within each twenty-four (24) hour period (unless no interoperable transactions were generated since the last sending).

IBR-DIR-12. Transaction records in the Transaction File shall be handled as specified in the ICD.

IBR-DIR-13. The Home Agency shall process the Away Agency's Transaction File within twenty-four (24) hours of receipt.

IBR-DIR-14. The Home Agency shall Post Valid Interoperable Transactions to Accounts indicating the Transaction date, time, location, vehicle classification and toll amount as specified by the Away Agency.

IBR-DIR-15. Each Agency will advise the other Agencies if transaction posting is not expected within thirty (30) days of the Transaction date.

IBR-DIR-16. If, by fault of the Away Agency, transaction processing and posting has not or could not be performed via NIOP within sixty (60) days, through no fault of the customer, then the Away Agency will agree to honor the toll rate applied to the transaction, for NIOP processing, with no additional fees in its pursuit for payment.

IBR-DIR-17. A Home Agency may reject an Interoperable Transaction that (1) is created by a vehicle associated with an Invalid Tag, (2) is a Duplicate Transaction, or (3) comprises a record that does not conform to the requirements of the ICD. Rejected Interoperable Transactions processed by the Home Agency shall be classified as "rejected" (or as a status as specified in the ICD) and returned to the Away Agency where the Interoperable Transaction occurred.

IBR-DIR-18. Processing of customer transactions at the Away Agency when the Tag is reported as invalid by the Home Agency will be pursuant to the rules and regulations of the Away Agency.

IBR-DIR-19. The Agencies agree to facilitate the identification of violators by the sharing of appropriate information or files to the extent permitted by law.

IBR-DIR-20. The Agencies will share customer account information only for the purpose of collecting tolls, the enforcement of toll policies or as otherwise required by law.

IBR-DIR-21. The Away Agencies will process toll transaction images in such a manner as to identify customers' accounts in good standing and thereby create a valid transaction if the result is associated with a Valid Tag.

IBR-DIR-22. If cash or equivalent is collected at the Away Agency for any transaction, the Away Agency will not transfer any such transactions to the Home Agency for payment.

IBR-DIR-23. The Home Agency may elect to not process Interoperable Transactions submitted to the Home Agency by the Away Agency sixty (60) calendar days after the date and time of the Interoperable Transaction.

IBR-DIR-24. Away Agencies shall filter out Duplicate Transactions prior to sending to the Home Agency.

IBR-DIR-25. Home Agencies shall filter out Duplicate Transactions from Away Agencies. In the event the Home Agency does receive Duplicate Transaction(s), it shall not Post or remit payment to the Away Agency for the Duplicate Transaction(s).

IBR-DIR-26. If an Interoperable Transaction from an Away Agency's facility is adjusted, the Away Agency may submit the adjusted Transaction to the Home Agency for posting within ninety (90) days of the transaction date.

IBR-DIR-27. Video Transactions associated with a valid Tag will be processed the same as all other valid Tag transactions for the purpose of Interoperability. The Away Agencies will submit the applicable toll rate in accordance with their agencies rules/policies.

IBR-DIR-28. Away Agency shall submit a customer transaction only to one home Agency for posting and payment.

2.1.6 Reporting Requirements

IBR-REP-1. All Interoperable Agencies shall comply with established reporting requirements issued by the (Governance).

2.1.7 Performance Requirements

IBR-PER-1. Receipt of a Transaction File shall be acknowledged by the Home Agency to the Away Agency within sixty (60) minutes after receipt.

IBR-PER-2. The Home Agency shall report to the Away Agency on the status of a processed Interoperable Transaction within twenty-four (24) hours of receipt of the Transaction File containing the Interoperable Transaction.

IBR-PER-3. Outages rectified as soon as possible but no more than 24 hours. Interruptions/Outages that are no fault of the Agency or routine maintenance is exempt.

2.1.8 Fees

IBR-FEE-1. The Away Agency shall pay the Home Agency a Base Transaction Fee for each Interoperable Transaction that is not rejected as indicated in (Governance)

IBR-FEE-2. Transaction Fees shall be reviewed and determined in accordance with procedures agreed upon by (Governance). The Transaction Fees so determined shall be adopted by and

applicable to all Interoperable Agencies unless a bilateral agreement exists between Agencies establishing a specific fee.

IBR-FEE-3. Modification to the requirements for payment of the Transaction Fees between any Interoperable Agencies shall be acknowledged by all participating Interoperable Agencies.

2.1.9 Testing Requirements

IBR-TST-1. Each Agency shall undergo and pass the minimum set of agreed-upon test requirements promulgated by the NIOP Technical Requirements document.

IBR-TST-2. Testing for Interoperability certification shall be at the expense of the Agency being certified as interoperable.

2.1.10 Notification of Maintenance and Modifications

IBR-MNT-1. Each Interoperable Agency shall strive to provide a minimum of thirty (30) days notification of tolling system changes that affect interoperability.

IBR-MNT-2. Each Interoperable Agency in receipt of another Interoperable Agency's change notification shall implement or provide notification of intent to implement any required modification to their system's configuration within the thirty (30) days provided.

IBR-MNT-3. Each Interoperable Agency shall strive to provide a minimum of thirty (30) days' notice of scheduled system maintenance to their respective system that will impact another Interoperable Agency and/or the processing of transactions.